

## WEST Search History

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DATE: Monday, November 22, 2004

Hide?	<u>Set</u> <u>Name</u>	<u>Query</u>	<u>Hit</u> <u>Count</u>
<i>DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
<input type="checkbox"/>	L4	(interleukin-22 or il-22) same (muta\$7 or variant)	23
<input type="checkbox"/>	L3	(interleukin-22 or il-22) and (muta\$7 or variant)	113
<input type="checkbox"/>	L2	(interleukin-22 or il-22) and (dimerization interface or dimerization domain)	4
<i>DB=USPT; THES=ASSIGNEE; PLUR=YES; OP=ADJ</i>			
<input type="checkbox"/>	L1	(interleukin-22 or il-22) and (dimerization interface or dimerization domain)	0

END OF SEARCH HISTORY

## Hit List

Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs
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Search Results - Record(s) 1 through 4 of 4 returned.

☐ 1. Document ID: US 20040002586 A1

Using default format because multiple data bases are involved.

L2: Entry 1 of 4

File: PGPB

Jan 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040002586

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040002586 A1

TITLE: Crystal structure of interleukin-22 and uses thereof

PUBLICATION-DATE: January 1, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nagem, Ronaldo A.P.	Campinas		BR	
Polikarpov, Igor	San Carlos		BR	
Renauld, Jean Christophe	Brussels		BE	
Colau, Didier	Brussels		BE	
Dumoutier, Laure	Brussels		BE	

US-CL-CURRENT: 530/351; 703/11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KINC	Draw D
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☐ 2. Document ID: US 20020187512 A1

L2: Entry 2 of 4

File: PGPB

Dec 12, 2002

PGPUB-DOCUMENT-NUMBER: 20020187512

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020187512 A1

TITLE: Crystal structure of human interleukin-22

PUBLICATION-DATE: December 12, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nagem, Ronaldo Alves Pinto	Campinas	NY	BR	
Polikarpov, Igor	Sao Carlos	NY	BR	
Renauld, Jean Christophe	New York	NY	US	

Colau, Didier	New York	US
Dumoutier, Laure	New York	US

US-CL-CURRENT: 435/7.1; 435/69.52, 702/19

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC	Draw D
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☐ 3. Document ID: US 20040002586 A1

L2: Entry 3 of 4

File: DWPI

Jan 1, 2004

DERWENT-ACC-NO: 2004-061676

DERWENT-WEEK: 200406

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TITLE: Identifying a mutant mammalian interleukin-22 (IL-22) with modified stability to dimerize and/or bind an IL-22 receptor comprises constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates given

INVENTOR: COLAU, D; DUMOUTIER, L ; NAGEM, R A P ; POLIKARPOV, I ; RENAULD, J C

PRIORITY-DATA: 2002US-0238965 (September 10, 2002), 2001US-317937P (September 10, 2001), 2001US-333150P (November 27, 2001), 2002US-0050552 (January 18, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20040002586 A1	January 1, 2004		104	C07K014/54

INT-CL (IPC): C07 K 14/54; G06 G 7/48; G06 G 7/58

ABSTRACTED-PUB-NO: US20040002586A

BASIC-ABSTRACT:

NOVELTY - Identifying a mutant mammalian interleukin-22 (IL-22) with modified stability to dimerize and/or bind an IL-22 receptor comprises constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates given in the specification.

DETAILED DESCRIPTION - The method comprises:

- (a) constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates given in the specification;
- (b) employing the three-dimensional structure and modeling methods to identify an amino acid involved in stabilizing IL-22 dimer and/or to identify an amino acid involved in receptor binding;
- (c) producing a mammalian IL-22 having a mutation at the amino acid cited above; and
- (d) assaying the mutant IL-22 to determine the ability of the mutant to dimerize and/or to bind to the IL-22 receptor as compared to an IL-22 control, where a difference in dimerization or binding between the mutant and the control is indicative of a modified ability to dimerize or to bind to the IL-22 receptor.

INDEPENDENT CLAIMS are included for the following:

- (1) a mutant IL-22 comprising at least one amino acid substitution in Region 1 or Region 2;
- (2) a mutant IL-22 comprising at least one mutation at an IL-22 dimerization interface;
- (3) a method for determining the ability of a substance of interest to bind to IL-22 or its mutant form;
- (4) a method for determining if a substance has potential usefulness as an antagonist or agonist of IL-22 or its mutant form; and
- (5) a machine-readable storage medium containing machine-readable data comprising at least a portion of structural coordinates of IL-22 or its mutant form.

USE - The method is useful for identifying a mutant mammalian IL-22 with modified stability to dimerize and/or bind an IL-22 receptor (claimed).

Full	Title	Citation	Front	Review	Classification	Date	Reference	Attachments	Claims	KWIC	Draw D
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☐ 4. Document ID: AU 2002341641 A1, US 20020187512 A1, WO 2003023012 A2

L2: Entry 4 of 4

File: DWPI

Mar 24, 2003

DERWENT-ACC-NO: 2003-370763

DERWENT-WEEK: 200461

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TITLE: New mutant interleukin-22 (IL-22) with mutation(s) at an IL-22 dimerization interface, useful as an antagonist for treating and inhibiting IL-22 mediated processes or IL-22 related disorders, e.g. asthma, inflammation or cancer

INVENTOR: COLAU, D; DUMOUTIER, L ; NAGEM, R A ; POLIKARPOV, I ; RENAULD, J C ;  
NAGEM, R A P

PRIORITY-DATA: 2002US-0050552 (January 18, 2002), 2001US-317937P (September 10, 2001), 2001US-333150P (November 27, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
AU 2002341641 A1	March 24, 2003		000	G01N033/53
US 20020187512 A1	December 12, 2002		102	G01N033/53
WO 2003023012 A2	March 20, 2003	E	000	C12N000/00

INT-CL (IPC): C12 N 0/00; C12 P 21/04; G01 N 33/48; G01 N 33/50; G01 N 33/53; G06 F 19/00

ABSTRACTED-PUB-NO: US20020187512A

BASIC-ABSTRACT:

NOVELTY - A mutant interleukin-22 (IL-22), which comprises at least one amino acid substitution in Region 1 or Region 2, or which comprises at least one mutation at an IL-22 dimerization interface, is new.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for identifying a mutant mammalian IL-22 with a modified ability to dimerize and/or bind an IL-22 receptor, comprising:

- (a) constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates fully defined in the specification;
- (b) employing the three-dimensional structure and modeling methods to identify an amino acid involved in stabilizing an IL-22 dimer, and/or to identify an amino acid involved in receptor binding;
- (c) producing a mammalian IL-22 having a mutation at an amino acid identified in (b); and
- (d) assaying the mutant IL-22 to determine the ability of the mutant to dimerize as compared to an IL-22 control, where a difference in dimerization between the mutant and the control is indicative of a modified ability to dimerize, and/or assaying the mutant IL-22 to determine the ability of the mutant to bind to the IL-22 receptor as compared to an IL-22 control, where a difference in binding between the mutant and the IL-22 control is indicative of a modified ability to bind the IL-22 receptor.

ACTIVITY - Antiasthmatic; Antiinflammatory; Cytostatic.

No biological data given.

MECHANISM OF ACTION - Interleukin-22 Agonist/Antagonist.

USE - The mutant IL-22 is useful as a therapeutic agent, particularly as agonists or antagonists. In particular, the mutant IL-22 is useful for treating and inhibiting IL-22 mediated processes or IL-22 related disorders, e.g. asthma, inflammation or cancer. The three-dimensional crystal structure of IL-22 is useful for identifying specific amino acids involved in binding the IL-22 receptor, and in rational drug design for producing therapeutic molecules, mimetics, IL-22 mutants, or ligands of the IL-22 receptor.

Full	Title	Citation	Front	Review	Classification	Date	Reference	Abstracts	Abstracts	Claims	KOMC	Drawings
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Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs	Generate OACS
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Terms	Documents
(interleukin-22 or il-22) and (dimerization interface or dimerization domain)	4

Display Format:

Change Format

[Previous Page](#)

[Next Page](#)

[Go to Doc#](#)



## Hit List

Clear	Generate Collection	Print	Fwd Refs	Bkwd Refs
Generate OACS				

Search Results - Record(s) 1 through 20 of 23 returned.

☐ 1. Document ID: US 20040209330 A1

Using default format because multiple data bases are involved.

L4: Entry 1 of 23

File: PGPB

Oct 21, 2004

PGPUB-DOCUMENT-NUMBER: 20040209330

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040209330 A1

TITLE: Anti-IL-22RA antibodies and binding partners and methods of using in inflammation

PUBLICATION-DATE: October 21, 2004

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Xu, Wenfeng	Seattle	WA	US	
Kindsvogel, Wayne	Seattle	WA	US	
Chandrasekher, Yasmin A.	Saratoga	CA	US	
Dillon, Stacey R.	Seattle	WA	US	
Lehner, Joyce M.	Seattle	WA	US	
Siadak, Anthony W.	Seattle	WA	US	
Sivakumar, Pallavur V.	Seattle	WA	US	
Moore, Margaret D.	Seattle	WA	US	

US-CL-CURRENT: 435/70.21

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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☐ 2. Document ID: US 20040180399 A1

L4: Entry 2 of 23

File: PGPB

Sep 16, 2004

PGPUB-DOCUMENT-NUMBER: 20040180399

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040180399 A1

TITLE: Isolated nucleic acid molecules which encode a soluble IL-TIF/IL-22 receptor or binding protein which binds to IL-TIF/IL-22, and uses thereof

PUBLICATION-DATE: September 16, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Renauld, Jean-Christophe	Brussels		BE	
Dumoutier, Laure	Brussels		BE	

US-CL-CURRENT: 435/69.1; 435/320.1, 435/325, 530/350, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC	Draw D
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☐ 3. Document ID: US 20040106184 A1

L4: Entry 3 of 23

File: PGPB

Jun 3, 2004

PGPUB-DOCUMENT-NUMBER: 20040106184

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040106184 A1

TITLE: Chromatographic methods for adenovirus purification

PUBLICATION-DATE: June 3, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Senesac, Joseph	Houston	TX	US	

US-CL-CURRENT: 435/239

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC	Draw D
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☐ 4. Document ID: US 20040092445 A1

L4: Entry 4 of 23

File: PGPB

May 13, 2004

PGPUB-DOCUMENT-NUMBER: 20040092445

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040092445 A1

TITLE: Use of LP82 to treat hematopoietic disorders

PUBLICATION-DATE: May 13, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Heuer, Josef Georg	Indianapolis	IN	US	
Liu, Ling	Carmel	IN	US	
Noblitt, Timothy W	Fishers	IN	US	

US-CL-CURRENT: 514/12

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC	Draw D
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☐ 5. Document ID: US 20040071699 A1

L4: Entry 5 of 23

File: PGPB

Apr 15, 2004

PGPUB-DOCUMENT-NUMBER: 20040071699

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040071699 A1

TITLE: Isolated nucleic acid molecules which encode a soluble IL-TIF receptor or binding protein which binds to IL-TIF/IL-22, and uses thereof

PUBLICATION-DATE: April 15, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Renauld, Jean-Christophe	Brussels		BE	
Dumourjer, Laure	Brussels		BE	

US-CL-CURRENT: 424/145.1; 435/320.1, 435/335, 435/69.1, 530/388.23, 536/23.53

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMMC	Draw. De
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☐ 6. Document ID: US 20040002586 A1

L4: Entry 6 of 23

File: PGPB

Jan 1, 2004

PGPUB-DOCUMENT-NUMBER: 20040002586

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20040002586 A1

TITLE: Crystal structure of interleukin-22 and uses thereof

PUBLICATION-DATE: January 1, 2004

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nagem, Ronaldo A.P.	Campinas		BR	
Polikarpov, Igor	San Carlos		BR	
Renauld, Jean Christophe	Brussels		BE	
Colau, Didier	Brussels		BE	
Dumoutier, Laure	Brussels		BE	

US-CL-CURRENT: 530/351; 703/11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMMC	Draw. De
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☐ 7. Document ID: US 20030225017 A1

L4: Entry 7 of 23

File: PGPB

Dec 4, 2003



PGPUB-DOCUMENT-NUMBER: 20030225017  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030225017 A1

TITLE: Chlamydia antigens and corresponding DNA fragments and uses thereof

PUBLICATION-DATE: December 4, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Murdin, Andrew D.	Richmond Hill		CA	
Oomen, Raymond P.	Aurora		CA	
Wang, Joe	Toronto		CA	
Dunn, Pamela	Woodbridge		CA	

US-CL-CURRENT: 514/44; 424/185.1, 435/252.3, 435/320.1, 435/6, 435/69.3, 530/350, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 8. Document ID: US 20030186387 A1

L4: Entry 8 of 23

File: PGPB

Oct 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030186387  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030186387 A1

TITLE: Interleukins-21 and 22

PUBLICATION-DATE: October 2, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ebner, Reinhard	Gaithersburg	MD	US	
Ruben, Steven M.	Brookeville	MD	US	

US-CL-CURRENT: 435/69.52; 424/85.2, 435/320.1, 435/325, 530/351, 530/388.23, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw. De
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☐ 9. Document ID: US 20030170839 A1

L4: Entry 9 of 23

File: PGPB

Sep 11, 2003

PGPUB-DOCUMENT-NUMBER: 20030170839  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20030170839 A1

TITLE: Type 2 cytokine receptor and nucleic acids encoding same

PUBLICATION-DATE: September 11, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Fouser, Lynette	Acton	MA	US	
Liu, Wei	Auburndale	MA	US	
Deng, Bijia	Allston	MA	US	

US-CL-CURRENT: 435/183; 435/320.1, 435/325, 435/6, 435/69.1, 536/23.2

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMMC	Draw. De
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☐ 10. Document ID: US 20030157106 A1

L4: Entry 10 of 23

File: PGPB

Aug 21, 2003

PGPUB-DOCUMENT-NUMBER: 20030157106

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030157106 A1

TITLE: Composition and method for treating inflammatory disorders

PUBLICATION-DATE: August 21, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jacobs, Kenneth	Newton	MA	US	
Pittman, Debra D.	Windham	NH	US	
Fouser, Lynette	Acton	MA	US	
Spaulding, Vikki	Lowell	MA	US	
Xuan, Dejun	Chestnut Hill	MA	US	

US-CL-CURRENT: 424/145.1; 530/388.23

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMMC	Draw. De
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☐ 11. Document ID: US 20030100076 A1

L4: Entry 11 of 23

File: PGPB

May 29, 2003

PGPUB-DOCUMENT-NUMBER: 20030100076

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030100076 A1

TITLE: Interleukin-22 polypeptides, nucleic acids encoding the same and methods for the treatment of pancreatic disorders

PUBLICATION-DATE: May 29, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gurney, Austin L.	Belmont	CA	US	
Aggarwal, Sudeepa	San Bruno	CA	US	
Xie, Ming-Hong	San Francisco	CA	US	
Maruoka, Ellen M.	San Francisco	CA	US	
Foster, Jessica S.	Hayward	CA	US	
Goddard, Audrey	San Francisco	CA	US	
Wood, William I.	Hillsborough	CA	US	

US-CL-CURRENT: 435/69.52; 435/320.1, 435/325, 530/351, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw D
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☐ 12. Document ID: US 20030099649 A1

L4: Entry 12 of 23

File: PGPB

May 29, 2003

PGPUB-DOCUMENT-NUMBER: 20030099649

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030099649 A1

TITLE: Composition and method for treating inflammatory disorders

PUBLICATION-DATE: May 29, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Jacobs, Kenneth	Newton	MA	US	
Pittman, Debra D.	Windham	NH	US	
Fouser, Lynette	Acton	MA	US	
Spaulding, Vikki	Lowell	MA	US	
Xuan, Dejun	Chestnut Hill	MA	US	

US-CL-CURRENT: 424/145.1; 530/388.23

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMOC	Draw D
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☐ 13. Document ID: US 20030092133 A1

L4: Entry 13 of 23

File: PGPB

May 15, 2003

PGPUB-DOCUMENT-NUMBER: 20030092133

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030092133 A1

TITLE: Interleukins-21 and 22

PUBLICATION-DATE: May 15, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ebner, Reinhard	Gaithersburg	MD	US	
Ruben, Steven M.	Olney	MD	US	

US-CL-CURRENT: 435/69.52; 435/320.1, 435/325, 530/351, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	K00C	Draw D
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☐ 14. Document ID: US 20030012788 A1

L4: Entry 14 of 23

File: PGPB

Jan 16, 2003

PGPUB-DOCUMENT-NUMBER: 20030012788

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030012788 A1

TITLE: Method for influencing kinase pathways with IL-22

PUBLICATION-DATE: January 16, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Renauld, Jean-Christophe	Brussels		BE	
Lejeune, Diane	Brussels		US	
Dumoutier, Laure			BE	

US-CL-CURRENT: 424/145.1; 435/6, 435/7.21

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	K00C	Draw D
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☐ 15. Document ID: US 20030003545 A1

L4: Entry 15 of 23

File: PGPB

Jan 2, 2003

PGPUB-DOCUMENT-NUMBER: 20030003545

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20030003545 A1

TITLE: INTERLEUKINS-21 AND 22

PUBLICATION-DATE: January 2, 2003

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
EBNER, REINHARD	GAITHERSBURG	MD	US	
RUBEN, STEVEN M.	OLNEY	MD	US	

US-CL-CURRENT: 435/69.5; 424/130.1, 424/143.1, 424/85.2, 435/320.1, 435/325, 435/6,  
435/69.2, 435/69.52, 530/351, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC	Drawings
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☐ 16. Document ID: US 20020187512 A1

L4: Entry 16 of 23

File: PGPB

Dec 12, 2002

PGPUB-DOCUMENT-NUMBER: 20020187512

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020187512 A1

TITLE: Crystal structure of human interleukin-22

PUBLICATION-DATE: December 12, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Nagem, Ronaldo Alves Pinto	Campinas	NY	BR	
Polikarpov, Igor	Sao Carlos	NY	BR	
Renauld, Jean Christophe	New York	NY	US	
Colau, Didier	New York		US	
Dumoutier, Laure	New York		US	

US-CL-CURRENT: 435/7.1; 435/69.52, 702/19

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KOMC	Drawings
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☐ 17. Document ID: US 20020102723 A1

L4: Entry 17 of 23

File: PGPB

Aug 1, 2002

PGPUB-DOCUMENT-NUMBER: 20020102723

PGPUB-FILING-TYPE: new

DOCUMENT-IDENTIFIER: US 20020102723 A1

TITLE: Interleukin-22 polypeptides, nucleic acids encoding the same and methods for the treatment of pancreatic disorders

PUBLICATION-DATE: August 1, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Gurney, Austin L.	Belmont	CA	US	
Aggarwal, Sudeepta	San Bruno	CA	US	
Xie, Ming-Hong	San Francisco	CA	US	
Maruoka, Ellen M.	San Francisco	CA	US	
Foster, Jessica S.	Hayward	CA	US	
Goddard, Audrey	San Francisco	CA	US	
Wood, William I.	Hillsborough	CA	US	



US-CL-CURRENT: 435/320.1; 424/134.1, 435/325, 435/69.1, 514/44, 530/324, 530/350,  
530/387.9, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMC	Draw De
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☐ 18. Document ID: US 20010023070 A1

L4: Entry 18 of 23

File: PGPB

Sep 20, 2001

PGPUB-DOCUMENT-NUMBER: 20010023070  
PGPUB-FILING-TYPE: new  
DOCUMENT-IDENTIFIER: US 20010023070 A1

TITLE: Interleukins-21 and 22

PUBLICATION-DATE: September 20, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Ebner, Reinhard	Gaithersburg	MD	US	
Ruben, Steven M.	Olney	MD	US	

US-CL-CURRENT: 435/69.5; 435/325, 435/6, 435/7.1, 530/351, 536/23.5

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMC	Draw De
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☐ 19. Document ID: US 6551799 B2

L4: Entry 19 of 23

File: USPT

Apr 22, 2003

US-PAT-NO: 6551799  
DOCUMENT-IDENTIFIER: US 6551799 B2

TITLE: Interleukin-22 polypeptides, nucleic acids encoding the same and methods for the treatment of pancreatic disorders

DATE-ISSUED: April 22, 2003

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Gurney; Austin L.	Belmont	CA		
Aggarwal; Sudeepta	San Bruno	CA		
Xie; Ming-Hong	San Francisco	CA		
Maruoka; Ellen M.	San Francisco	CA		
Foster; Jessica S.	Hayward	CA		
Goddard; Audrey	San Francisco	CA		
Wood; William I.	Hillsborough	CA		

US-CL-CURRENT: 435/69.52; 435/320.1, 435/325, 530/351

## ABSTRACT:

The present invention is directed to interleukin-22 polypeptides and nucleic acid molecules encoding those polypeptides. Also provided herein are vectors and host cells comprising those nucleic acid sequences, chimeric polypeptide molecules comprising the polypeptides of the present invention fused to heterologous polypeptide sequences, antibodies which bind to the polypeptides of the present invention and to methods for producing the polypeptides of the present invention.

6 Claims, 11 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 11

Full	Title	Citation	Front	Review	Classification	Date	Reference	Examiners	Attachments	Claims	KMMC	Draw D
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☐ 20. Document ID: US 6395538 B1

L4: Entry 20 of 23

File: USPT

May 28, 2002

US-PAT-NO: 6395538

DOCUMENT-IDENTIFIER: US 6395538 B1

TITLE: Method and system for providing real-time, in situ biomanufacturing process monitoring and control in response to IR spectroscopy

DATE-ISSUED: May 28, 2002

## INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Naughton; Raymond A.	West River	MD		
Rohrer; Thomas R.	Hagerstown	MD		
Gentz; Reiner L.	Rockville	MD		

US-CL-CURRENT: 435/288.7; 435/173.1, 435/173.7

## ABSTRACT:

A method and system for providing real-time, biomanufacturing process monitoring and control in response to infra-red (IR) spectroscopic fingerprinting of a biomolecule. IR spectroscopy is used to fingerprint an active biomolecule in situ in a biomanufacturing process. In one embodiment, Fourier Transform Infra-red spectroscopy (FTIR) is used to determine whether an active or aged biomolecule is present in stages of a biomanufacturing process. In one preferred example, the biomanufacturing process manufactures a biomaterial in bulk. The biomanufacturing process has four stages: bioproduction, recovery, purification, and bulk storage. FTIR spectroscopy is used to monitor the optimization of each process step by providing feedback controls, and to fingerprint in real-time, in situ whether active biomolecules are present in each stage.

27 Claims, 13 Drawing figures

Exemplary Claim Number: 1

Number of Drawing Sheets: 13

## Hit List

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Search Results - Record(s) 21 through 23 of 23 returned.

☐ 21. Document ID: US 20040002586 A1

Using default format because multiple data bases are involved.

L4: Entry 21 of 23

File: DWPI

Jan 1, 2004

DERWENT-ACC-NO: 2004-061676

DERWENT-WEEK: 200406

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TITLE: Identifying a mutant mammalian interleukin-22 (IL-22) with modified stability to dimerize and/or bind an IL-22 receptor comprises constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates given

INVENTOR: COLAU, D; DUMOUTIER, L ; NAGEM, R A P ; POLIKARPOV, I ; RENAULD, J C

PRIORITY-DATA: 2002US-0238965 (September 10, 2002), 2001US-317937P (September 10, 2001), 2001US-333150P (November 27, 2001), 2002US-0050552 (January 18, 2002)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 20040002586 A1	January 1, 2004		104	C07K014/54

INT-CL (IPC): C07 K 14/54; G06 G 7/48; G06 G 7/58

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequence	Attachments	Claims	KMC	Draw D
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☐ 22. Document ID: AU 2002341641 A1, US 20020187512 A1, WO 2003023012 A2

L4: Entry 22 of 23

File: DWPI

Mar 24, 2003

DERWENT-ACC-NO: 2003-370763

DERWENT-WEEK: 200461

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TITLE: New mutant interleukin-22 (IL-22) with mutation(s) at an IL-22 dimerization interface, useful as an antagonist for treating and inhibiting IL-22 mediated processes or IL-22 related disorders, e.g. asthma, inflammation or cancer

INVENTOR: COLAU, D; DUMOUTIER, L ; NAGEM, R A ; POLIKARPOV, I ; RENAULD, J C ; NAGEM, R A P

PRIORITY-DATA: 2002US-0050552 (January 18, 2002), 2001US-317937P (September 10, 2001), 2001US-333150P (November 27, 2001)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
AU 2002341641 A1	March 24, 2003		000	G01N033/53
US 20020187512 A1	December 12, 2002		102	G01N033/53
WO 2003023012 A2	March 20, 2003	E	000	C12N000/00

INT-CL (IPC): C12 N 0/00; C12 P 21/04; G01 N 33/48; G01 N 33/50; G01 N 33/53; G06 F 19/00

ABSTRACTED-PUB-NO: US20020187512A

BASIC-ABSTRACT:

NOVELTY - A mutant interleukin-22 (IL-22), which comprises at least one amino acid substitution in Region 1 or Region 2, or which comprises at least one mutation at an IL-22 dimerization interface, is new.

DETAILED DESCRIPTION - An INDEPENDENT CLAIM is also included for identifying a mutant mammalian IL-22 with a modified ability to dimerize and/or bind an IL-22 receptor, comprising:

(a) constructing a three-dimensional structure of hIL-22 defined by the atomic coordinates fully defined in the specification;

(b) employing the three-dimensional structure and modeling methods to identify an amino acid involved in stabilizing an IL-22 dimer, and/or to identify an amino acid involved in receptor binding;

(c) producing a mammalian IL-22 having a mutation at an amino acid identified in (b); and

(d) assaying the mutant IL-22 to determine the ability of the mutant to dimerize as compared to an IL-22 control, where a difference in dimerization between the mutant and the control is indicative of a modified ability to dimerize, and/or assaying the mutant IL-22 to determine the ability of the mutant to bind to the IL-22 receptor as compared to an IL-22 control, where a difference in binding between the mutant and the IL-22 control is indicative of a modified ability to bind the IL-22 receptor.

ACTIVITY - Antiasthmatic; Antiinflammatory; Cytostatic.

No biological data given.

MECHANISM OF ACTION - Interleukin-22 Agonist/Antagonist.

USE - The mutant IL-22 is useful as a therapeutic agent, particularly as agonists or antagonists. In particular, the mutant IL-22 is useful for treating and inhibiting IL-22 mediated processes or IL-22 related disorders, e.g. asthma, inflammation or cancer. The three-dimensional crystal structure of IL-22 is useful for identifying specific amino acids involved in binding the IL-22 receptor, and in rational drug design for producing therapeutic molecules, mimetics, IL-22 mutants, or ligands of the IL-22 receptor.

Full	Title	Citation	Front	Review	Classification	Date	Reference	SEQUENCES	Drawings	Claims	KWIC	Draw D
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☐ 23. Document ID: EP 1443055 A2, WO 9961617 A1, AU 9942087 A, EP 1082433 A1, MX 2000011729 A1, JP 2002516103 W, US 20030003545 A1, US 20030092133 A1

L4: Entry 23 of 23

File: DWPI

Aug 4, 2004

DERWENT-ACC-NO: 2000-072622

DERWENT-WEEK: 200451

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TITLE: Novel polynucleotides used to develop products for treating e.g. immune disorders, blood disorders, autoimmune disorders, allergies, inflammation, hyperproliferative disorders or infections

INVENTOR: EBNER, R; RUBEN, S M

PRIORITY-DATA: 1999US-131965P (April 30, 1999), 1998US-087340P (May 29, 1998), 1998US-099805P (September 10, 1998), 1999US-0320713 (May 27, 1999), 2002US-0153770 (May 24, 2002)

## PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
<u>EP 1443055 A2</u>	August 4, 2004	E	000	C07K014/54
<u>WO 9961617 A1</u>	December 2, 1999	E	169	C12N015/24
<u>AU 9942087 A</u>	December 13, 1999		000	
<u>EP 1082433 A1</u>	March 14, 2001	E	000	
<u>MX 2000011729 A1</u>	June 1, 2001		000	A61K038/20
<u>JP 2002516103 W</u>	June 4, 2002		233	C12N015/09
<u>US 20030003545 A1</u>	January 2, 2003		000	C12Q001/68
<u>US 20030092133 A1</u>	May 15, 2003		000	C07K014/54

INT-CL (IPC): A61 K 38/00; A61 K 38/20; A61 K 39/395; A61 K 45/00; A61 P 7/04; A61 P 9/00; A61 P 15/08; A61 P 25/00; A61 P 35/04; A61 P 43/00; C07 H 21/04; C07 K 1/00; C07 K 14/00; C07 K 14/54; C07 K 16/24; C07 K 17/00; C12 N 1/15; C12 N 1/19; C12 N 1/21; C12 N 5/00; C12 N 5/02; C12 N 5/06; C12 N 5/10; C12 N 15/00; C12 N 15/09; C12 N 15/24; C12 N 15/63; C12 N 15/70; C12 N 15/74; C12 P 21/02; C12 P 21/04; C12 Q 1/68; G01 N 33/68

ABSTRACTED-PUB-NO: WO 9961617A

## BASIC-ABSTRACT:

NOVELTY - New isolated human interleukin-21 (IL-21) and IL-22 polynucleotides (PNs) and polypeptides are disclosed.

DETAILED DESCRIPTION - A novel isolated nucleic acid molecule (NAM) comprises a PN having a nucleotide sequence (NS) at least 95% identical to a sequence selected from:

(1) a PN fragment having a fully defined 705, 1067 or 1642 base sequence, given in the specification or a PN fragment of the cDNA sequence in ATCC No. 209666 or 209655;

(2) a PN encoding a polypeptide fragment having a fully defined 87, 160 or 197 residue amino acid sequence given in the specification, or the cDNA sequence in ATCC No. 209666 or 209655;

(3) a PN encoding conserved polypeptide domain (I), (II), (III), or (IV) of sequence (II), (III) or (IV) or the cDNA sequence in ATCC No. 209666 or 209655;



- (4) a PN encoding a polypeptide epitope of sequence (II), (III) or (IV) or the cDNA sequence in ATCC No. 209666 or 209655;
- (5) a PN encoding a polypeptide of sequence (II), (III) or (IV) or the cDNA sequence in ATCC No. 209666 or 209655 having biological activity;
- (6) a PN which is a variant or an allelic variant of sequence (II), (III) or (IV);
- (7) a PN which encodes a species homolog of the polypeptide whose amino acid sequence is shown in sequence (II), (III) or (IV);
- (8) a PN capable of hybridized under stringent conditions to any of the PNs as in (1)-(7), where the PN does not hybridize under stringent conditions to a NAM having a NS of only A residues or of only T residues; and
- (9) a PN which is complementary to any of (1)-(8).

INDEPENDENT CLAIMS are also included for the following:

- (1) a recombinant vector comprising an isolated NAM as in (1);
- (2) a method of making a recombinant host cell comprising an isolated NAM as in the novelty, (1) or (2);
- (3) a recombinant host cell produced by a method as in (2);
- (4) an isolated polypeptide comprising an amino acid sequence at least 95% identical to a sequence selected from:
  - (a) a polypeptide fragment of sequence (II) or the encoded sequence included in ATCC No. 209666, optionally having biological activity;
  - (b) a polypeptide domain or epitope of sequence (II) or the encoded sequence included in ATCC No. 209666;
  - (c) a mature form of a secreted protein or a full length secreted protein; a variant, allelic variant, or species homolog of sequence (II);
- (5) an isolated antibody that binds specifically to an isolated polypeptide as in (4);
- (6) a recombinant host cell that expresses an isolated polypeptide as above;
- (7) a gene corresponding to a cDNA sequence of sequence (II), (III) or (IV).

ACTIVITY - Immunestimulatory; anticoagulant; immunosuppressant; antiasthmatic; antiinflammatory; cytostatic; antiviral; antibacterial; fungicide; vulnery.

MECHANISM OF ACTION - The IL-21 and IL-22 proteins modulate IL-6 secretion from NIH-3T3 cells. IL-21 and IL-22 proteins modulate immune system cell proliferation and differentiation in a dose-dependent manner.

USE - The polypeptides can be used for preventing, treating or ameliorating a medical condition (claimed). IL-21 and IL-22 polypeptide or PNs may be useful in treating deficiencies or disorders of the immune system, by activating or inhibiting the proliferation, differentiation, or mobilization (chemotaxis) of immune cells, treating or detecting deficiencies or disorders of hematopoietic cells, to modulate hemostatic or thrombolytic activity, in treating or detecting autoimmune disorders, treating asthma (particularly allergic asthma) or other respiratory problems, to treat and/or prevent organ rejection or graft-versus-host

disease (GVHD), to modulate inflammation (e.g. septic shock, sepsis, arthritis, nephritis, cytokine or chemokine induced lung injury, inflammatory bowel disease, Crohn's disease, or resulting from over production of cytokines), to treat or detect hyperproliferative disorders, including neoplasms in the abdomen, bone, breast, digestive system, liver, pancreas, peritoneum, endocrine glands, eye, head and neck, nervous (central and peripheral), lymphatic system, pelvic, skin, soft tissue, spleen, thoracic and urogenital, hypergammaglobulinemia, lymphoproliferative disorders, sarcoidosis, Waldenstrom's macroglobulinemia), to treat or detect infectious agents, e.g. viruses (e.g. arthritis, bronchiolitis, encephalitis, eye infections, chronic fatigue syndrome, hepatitis, meningitis, AIDS, pneumonia, chickenpox, measles, mumps, parainfluenza, rabies, the common cold, polio, leukemia, rubella, sexually transmitted diseases, or skin diseases) bacterial or fungal agents (e.g. bacteremia, endocarditis, eye infections, gingivitis, opportunistic infections, respiratory tract infections, Lyme disease, cat-scratch disease, paratyphoid fever, food poisoning, pneumonia, gonorrhea and sexually transmitted diseases, meningitis, tuberculosis, lupus, gangrene, tetanus, rheumatic fever, urinary tract infections, wound infections), parasitic agents (e.g. scabies, dysentery, liver disease, malaria, toxoplasmosis), to differentiate, proliferate and attract cells, leading to the regeneration of tissues (e.g. repair, replace or protect tissue in wounds, burns, incisions or ulcers, osteoporosis, osteoarthritis, periodontal disease, liver failure, surgery, cosmetic plastic surgery, reperfusion injury) to proliferate and differentiate nerve cells (e.g. spinal cord disorders, head trauma, cerebrovascular disease and stroke), localized neuropathies and central nervous system diseases (e.g. Alzheimer's disease, Parkinson's disease, Huntington's disease, amyotrophic lateral sclerosis, and Shy-Drager syndrome). IL-21 and IL-22 polypeptides or PNS may also increase or decrease the differentiation or proliferation of embryonic stem cells and hematopoietic lineage, may be used to modulate mammalian characteristics such as body height, weight, hair color, eye color, skin, percentage of adipose tissue, pigmentation, size, and shape, to modulate mammalian metabolism affecting catabolism, anabolism, processing, utilization and storage of energy, to change a mammal's mental state or physical state by influencing biorhythms, circadian rhythms, cicadian rhythms, depression (including depressive disorders), tendency for violence, tolerance for pain, reproductive capabilities, hormonal or endocrine levels, appetite, libido, memory, stress, or other cognitive qualities, as a food additive or preservative, such as to increase or decrease storage capabilities, fat content, lipid, protein, carbohydrate, vitamins, minerals, cofactors or other nutritional components. The polypeptides can also be used to identify binding partners. Mutations in the PNs or the presence or amount of expression or activity of the polypeptides can be used for diagnosing a pathological condition or a susceptibility to a pathological condition (claimed).

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KMC	Draw D
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Terms

Documents

(interleukin-22 or il-22) same (muta\$7 or variant)

23

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